USGS dam removal science database: a living database for information on dying dams

2015 CDI Project
Jeff Duda, Ryan Bellmore, Jon Warrick, Sky Bristol, Vivian Hutchison, Daniel Wieferich, and Katherine Vittum (USGS)
Laura Craig and Erin McCombs (American Rivers)

Scope: The removal of dams has increased in recent years and the trend is expected to contintue (fig 1). A synthesis of scientific information on dam removal studies is needed to inform decision makers, pracitioners, and the public about ecosystem outcomes and the potential for river restoration.

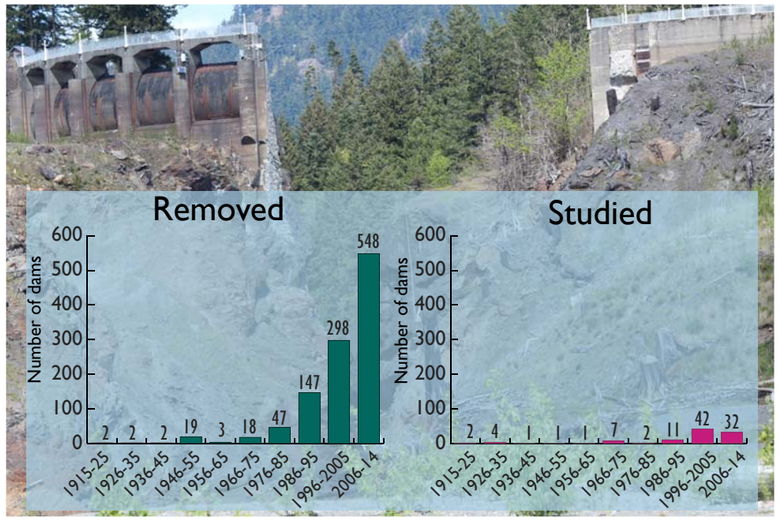
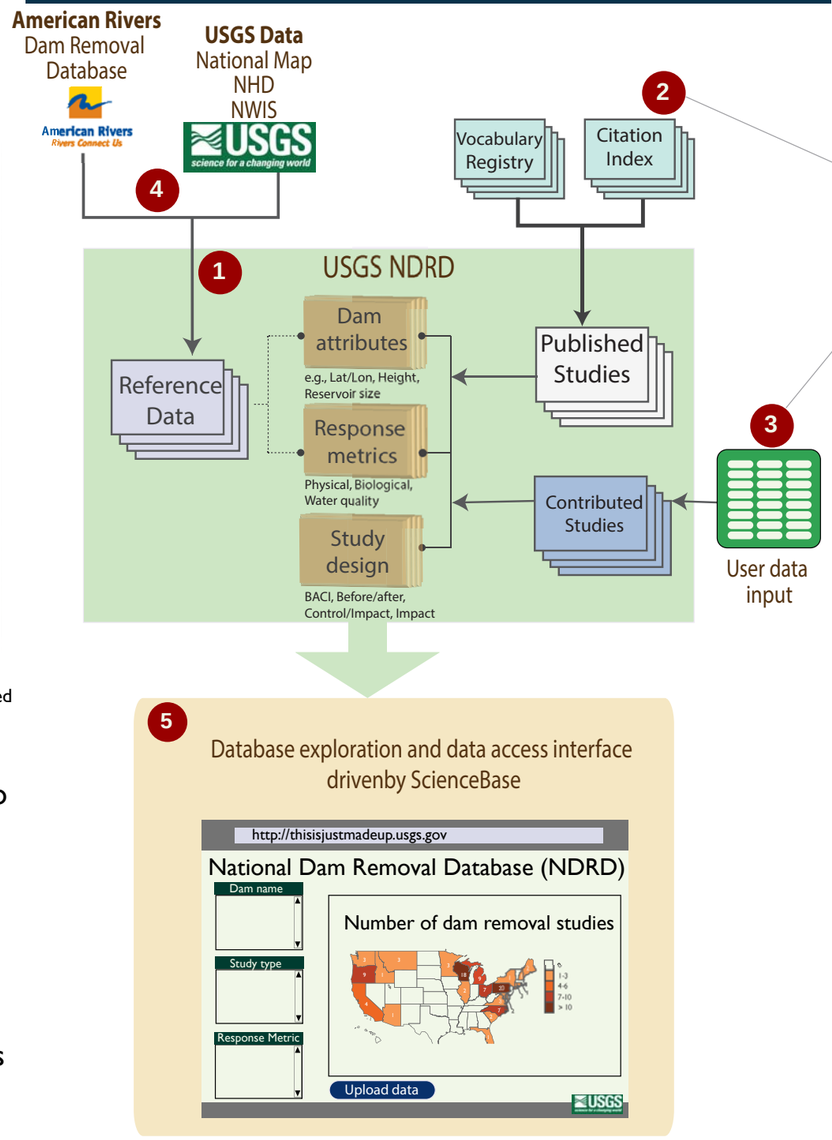


Figure 1. (a) U.S. dam removals by decade, from American Rivers 2014 (b) U.S. dam removals with at least 1 published study, from Bellmore et al. 2015. Photo of former Glines Canyon Dam, removed from Elwha River, WA, in 2014.

Objective: Create a dynamic, National Dam Removal Database (NDRD) that will make significant contributions to forecasting ecological and geomorphic responses to dam removal and guiding dam removal efforts through an ability to leverage metaknowledge from the entire body of dam removal science.

Benefits: A living repository of structured information about dam remvoval projects, outcomes, and scientific studies will provide managers, decision makers and scientists with a dynamic tool for exploring questions about dam removal.



Project architecture: The USGS dam removal science database will be housed within ScienceBase and leveraged with existing relevant information sources.

1. Dam removal science database contains 3 tables that describe characteristics of removed dams (e.g., height, location) and associated metrics from scientific studies.
2. The database tables are formed from data extracted from published scientific literature and other contributed studies. ScienceBase vocabulary provides functionality for controlling content input.
3. Users can upload dam removal information through spreadsheet upload and/or data entry form.
4. Other existing geospatial databases will be dynamically integrated into the NDRD, providing additional attributes relevant to dam removal. These leveraged sources include USGS national data sets like NWIS, NHD, as well as other dam related databases (e.g., NID, American Rivers).
5. A map-based interface will serve as a portal into the dam removal science database, where projects can be explored, data can be visualized, and spatial and temporal trends examined. ScienceBase API will drive interface functionality.

Key Features:

- **Interactive, updated information on US dam removals.**
- **Up to date clearinghouse for dam removal project information and associated studies.**
- **User interface allowing new projects and studies to be added to database.**

Missing Features? Other ideas? Let us know!

Please post your ideas for additional features or information assets that you think could help us.

Contact: jduda@usgs.gov

U.S. Department of the Interior
U.S. Geological Survey